

WHAT IS CLAIMED IS:

1. An expandable spinal implant, comprising:
 - a body having a longitudinal axis and including a plurality of movable portions extending along said longitudinal axis and cooperating to define an outer cross section
 - 5 having a first transverse dimension and a second transverse dimension, said movable portions defining first and second substantially planar surfaces disposed generally opposite one another and adapted to engage adjacent vertebral bodies; and
 - an expansion member co-acting with said movable portions to expand said outer cross section along each of said first and second transverse dimensions.

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2. The implant of claim 1, wherein said movable portions cooperate to define third and forth substantially planar surfaces disposed generally opposite one another and extending between said first and second substantially planar surfaces.

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3. The implant of claim 2, wherein said movable portions cooperate to define a generally rectangular outer cross section.

4. The implant of claim 1, wherein said body has a substantially parallelepiped configuration.

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5. The implant of claim 1, wherein said first and second substantially planar surfaces are arranged parallel to one another.

- 25 6. The implant of claim 1, wherein said first and second substantially planar surfaces extend along one of said first and second transverse dimensions.

7. The implant of claim 1, wherein said first transverse dimension is arranged substantially perpendicular to said second transverse dimension.

8. The implant of claim 1, wherein said movable portions cooperate to define
5 an inner chamber sized to receive said expansion member therein; and
wherein displacement of said expansion member within said inner chamber engages
said expansion member with said movable portions to expand said movable portions along
said first and second transverse dimensions.

10 9. The implant of claim 8, wherein said displacement comprises movement of
said expansion member within said inner chamber generally along said longitudinal axis.

10. The implant of claim 9, wherein said movable portions have inner surfaces
defining said inner chamber, said inner surfaces defining an inward taper along said
15 longitudinal axis, said expansion member engaging said inner surfaces of said movable
portions to expand said body along said first and second transverse dimensions as said
expansion member is displaced generally along said longitudinal axis.

11. The implant of claim 10, wherein said inner surfaces of said movable
20 portions are substantially planar.

12. The implant of claim 10, wherein said inner surfaces of said movable
portions provide said inner chamber with a substantially rectangular inner cross section.

13. The implant of claim 1, wherein at least one of said movable portions includes a retention element adapted to engage and retain said expansion member in a select position relative to said movable portions upon expansion of said body along said first and second transverse dimensions.

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14. The implant of claim 13, wherein said retention element comprises a ridge extending from an inner surface of said one of said movable portions.

15. The implant of claim 14, wherein said retention element comprises a pair of
10 opposing ridges extending from inner surfaces of opposite ones of said movable portions.

16. The implant of claim 14, wherein said retention element further comprises a transverse flange extending inwardly from said inner surface of said one of said movable portions, said expansion member positioned between said retention element and said
15 transverse flange to retain said expansion member in said select position.

17. The implant of claim 1, wherein said movable portions cooperate to define an inner fusion chamber.

20 18. The implant of claim 17, wherein said first and second substantially planar surfaces define a plurality of apertures extending therethrough in communication with said inner fusion chamber.

25 19. The implant of claim 17, further comprising a bone growth promoting substance disposed within said inner chamber to facilitate fusion with the adjacent vertebral

bodies.

20. The implant of claim 19, wherein said bone growth promoting substance comprises a bone morphogenic protein.

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21. The implant of claim 1, wherein said first and second substantially planar surfaces define a plurality of anchor elements adapted to engage the implant with the adjacent vertebral bodies.

10 22. The implant of claim 21, wherein said anchor elements comprise ridges extending generally along a corresponding one of said first and second transverse dimensions and axially spaced along the longitudinal axis.

15 23. The implant of claim 1, wherein said body is formed of a material having a modulus of elasticity substantially similar to bone.

24. The implant of claim 1, wherein said body is formed of a polymeric material.

20 25. The implant of claim 24, wherein said polymeric material comprises a composite polymer.

26. The implant of claim 1, wherein said body is formed of a resorbable material.

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27. The implant of claim 26, wherein said resorbable material comprises a polymeric material.

28. The implant of claim 1, wherein said body includes a fixed base portion
5 having a constant outer cross section, each of said movable portions depending from said fixed base portion.

29. The implant of claim 28, wherein said movable portions are formed integral with said fixed base portion to define a single-piece unitary body.

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30. An expandable spinal implant, comprising:
a body having a longitudinal axis and including a plurality of movable portions extending along said longitudinal axis and cooperating to define a generally rectangular outer cross section having a first transverse dimension and a second transverse dimension;
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an expansion member co-acting with said plurality of movable portions to expand said outer cross section along each of said first and second transverse dimensions.

31. The implant of claim 30, wherein said body has a substantially
20 parallelepiped configuration.

32. The implant of claim 30, wherein said first transverse dimension is substantially perpendicular to said second transverse dimension.

33. The implant of claim 30, wherein said movable portions cooperate to define an inner chamber sized to receive said expansion member therein; and

wherein displacement of said expansion member within said inner chamber engages said expansion member with said movable portions to expand said movable portions along
5 said first and second transverse dimensions.

34. The implant of claim 33, wherein said displacement comprises movement of said expansion member within said inner chamber generally along said longitudinal axis.

10 35. The implant of claim 33, wherein said movable portions have substantially planar inner surfaces defining said inner chamber, said inner surfaces defining an inward taper along said longitudinal axis, said expansion member engaging said planar inner surfaces of said movable portions to expand said body along said first and second transverse dimensions as said expansion member is displaced generally along said
15 longitudinal axis.

36. The implant of claim 30, wherein said movable portions cooperate to define an inner fusion chamber for receiving a bone growth promoting substance to facilitate fusion with adjacent vertebral bodies.

20 37. The implant of claim 30, wherein said movable portions define first and second substantially planar surfaces disposed generally opposite one another and adapted to engage adjacent vertebral bodies, said planar outer surfaces defining a plurality of anchor elements adapted to engage the implant with the adjacent vertebral bodies.

38. The implant of claim 30, wherein said body includes a fixed base portion having a constant outer cross section, each of said movable portions depending from said fixed base portion.

5 39. The implant of claim 38, wherein said movable portions are formed integral with said fixed base portion to define a single-piece unitary body.

40. An expandable spinal implant, comprising:
a body having a longitudinal axis and a plurality of movable portions cooperating to
10 define an outer cross section having a first transverse dimension and a second transverse dimension, said movable portions having substantially planar inner surfaces that cooperate to define an inner chamber having a substantially rectangular inner cross section, said inner surfaces defining an inward taper along said longitudinal axis; and
an expansion member having a substantially rectangular outer cross section and
15 engaging said inner surfaces of said movable portions to expand said movable portions along each of said first and second transverse dimensions as said expansion member is displaced generally along said longitudinal axis.

41. The implant of claim 40, wherein said movable portions cooperate to define
20 first and second substantially planar outer surfaces disposed generally opposite one another and adapted to engage adjacent vertebral bodies

42. The implant of claim 41, wherein said first and second substantially planar outer surfaces are arranged parallel to one another.

43. The implant of claim 41, wherein said first and second substantially planar outer surfaces define a plurality of apertures extending therethrough in communication with said inner chamber.

5 44. The implant of claim 41, wherein said first and second substantially planar outer surfaces define a plurality of anchor elements adapted for engagement with the adjacent vertebral bodies.

10 45. The implant of claim 40, wherein said movable portions cooperate to define a generally rectangular outer cross section.

46. The implant of claim 45, wherein said body has a substantially parallelepiped configuration.

15 47. The implant of claim 40, wherein at least one of said movable portions includes a retention element adapted to engage and retain said expansion member in a select position relative to said movable portions upon expansion of said movable portions along said first and second transverse dimensions.

20 48. The implant of claim 40, further comprising a bone growth promoting substance disposed within said inner chamber to facilitate fusion with adjacent vertebral bodies.

49. An expandable spinal implant, comprising:

a body having a longitudinal axis and including a plurality of movable portions extending along said longitudinal axis and cooperating to define an outer cross section having a first transverse dimension and a second transverse dimension, said movable portions defining first and second substantially planar surfaces disposed generally opposite one another and adapted to engage adjacent vertebral bodies; and

means for expanding said outer cross section along said first and second transverse dimensions.

10 50. A surgical method, comprising:

providing an expandable spinal implant including a plurality of movable portions extending along a longitudinal axis and cooperating to define an outer cross section having a first transverse dimension and a second transverse dimension, the movable portions defining first and second substantially planar surfaces disposed generally opposite one another;

inserting the spinal implant within an intervertebral space and positioning the first and second substantially planar surfaces adjacent respective first and second vertebral bodies; and

expanding the outer cross section of the movable portions along each of the first and second transverse dimensions and engaging the first and second substantially planar surfaces against the respective first and second vertebral bodies.

51. The method of claim 50, wherein the movable portions cooperate to define an inner chamber extending along the longitudinal axis; and

25 further comprising positioning a bone growth promoting material within the inner

chamber.

52. The method of claim 51, wherein the bone growth promoting material comprises a bone morphogenic protein.

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53. The method of claim 50, wherein the movable portions cooperate to define an inner chamber extending along the longitudinal axis; and
wherein the expanding results from axially displacing an expansion member along the inner chamber.

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54. The method of claim 53, further comprising positioning a bone growth promoting material within the inner chamber.

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55. The method of claim 50, wherein the inserting comprises impacting the spinal implant into the intervertebral space.

56. The method of claim 50, wherein the inserting comprises pushing the spinal implant into the intervertebral space.

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57. The method of claim 50, wherein the inserting comprises displacing the spinal implant generally along the longitudinal axis without rotating the spinal implant.

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58. The method of claim 50, wherein the expanding occurs along a height dimension of the intervertebral space and along a lateral dimension of the intervertebral space.

59. The method of claim 50, wherein the movable portions cooperate to define a generally rectangular outer cross section.

5 60. The method of claim 50, wherein the body has a substantially parallelepiped configuration.